

1. (Currently Amended) A method of ~~labeling an organic compound for fluorescent detection~~ conjugating a fluorophore to a biomolecule, comprising:

providing a fluorophore having the structure illustrated by Formula A

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valence bonds of said chain being attached to the nitrogen attached to the 3' carbon; R_7 and R_8 taken together form an alkyl or alkylene chain containing up to 5 atoms in the principal chain, consisting of carbon and one or more heteroatoms from the group consisting of nitrogen or oxygen, with both terminal valence bonds of said chain being attached to the nitrogen attached to the 6' carbon; R_{11} , R_{12} , R_{13} , and R_{14} are each hydrogen or halogen, where R_a and R_a' are selected from the group consisting of alkyl, carboxyalkyl, aminoalkyl, cycloalkyl, and aryl ~~and arylalkyl~~, wherein R_a confers resistance to lactam ring formation, and further wherein R_a' contains a functional group; and,

conjugating the fluorophore with a biomolecule selected from the group consisting of an amino acid, peptide, protein, nucleotide, oligonucleotide, nucleic acid, cell surface membrane and viral coat through the R_a' functional group of the fluorophore, the resultant conjugate being fluorescent upon excitation with light of a ~~determinable~~ wavelength of 500 to 700 nm.

2-4. (Canceled)

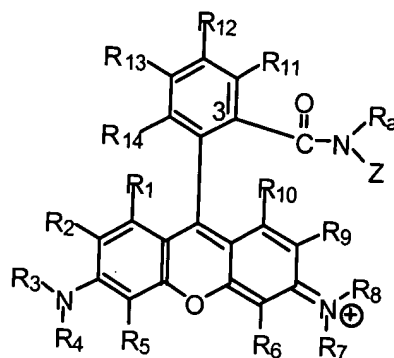
5. (Previously Presented) The method as in claim 1 wherein the biomolecule is attached to a solid support.
6. (Previously Presented) The method as in claim 1 wherein the biomolecule is an oligonucleotide and the fluorophore is attached via a phosphoramidite at the 5' end in the conjugate.
7. (Original) The method as in claim 5 wherein the biomolecule is an oligonucleotide and the fluorophore is attached at the 3' end in the conjugate.
8. (Previously Presented) The method as in claim 1 wherein the biomolecule is an amino acid, a peptide or a protein, and the fluorophore is attached at an amine or sulfhydryl in the conjugate.

9. (Canceled)

10. (Currently Amended) A fluorophore conjugate comprising:

a conjugated substance and a fluorophore, the conjugated substance being an amino acid, peptide, protein, nucleotide, oligonucleotide, or nucleic acid to which is attached one or more fluorophores, the fluorophore conjugate having the structure illustrated by Formula 1

FORMULA 1

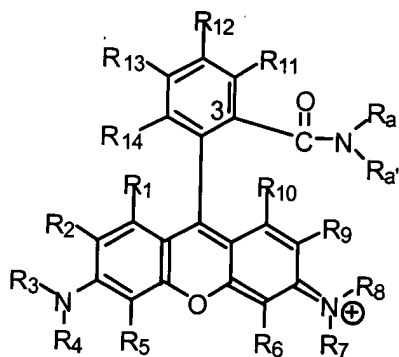


where R₁ and R₁₀ taken alone are hydrogen or halogen; R₂, R₅, R₆ and R₉ taken alone are hydrogen, alkyl, carboxyalkyl, aminoalkyl, alkylether, alkylthioether, halogen or alkoxy; R₃, R₄, R₇ and R₈ taken alone are hydrogen, and ~~substituted or unsubstituted~~ alkyl, carboxyalkyl, aminoalkyl, cycloalkyl, or aryl; R₂ and R₃ taken together are alkyl chains each having from 2 to 5 carbon atoms connecting the 2' carbon to the nitrogen attached to the 3' carbon; R₉ and R₈ taken together are alkyl chains each having from 2 to 5 carbon atoms connecting the 7' carbon to the nitrogen attached to the 6' carbon; R₄ and R₅ taken together are alkyl, each having from 2 to 5 carbon atoms connecting the 4' carbon to the nitrogen attached to the 3' carbon; R₆ and R₇ taken together are alkyl, each having from 2 to 5 carbon atoms connecting the 5' carbon to the nitrogen attached to the 6' carbon; R₃ and R₄ taken together form an alkyl or alkylene chain containing up to 5 atoms in the principal chain,

consisting of carbon and one or more heteroatoms from the group consisting of nitrogen or oxygen, with both terminal valence bonds of said chain being attached to the nitrogen attached to the 3' carbon; R₇ and R₈ taken together form an alkyl or alkylene chain containing up to 5 atoms in the principal chain, consisting of carbon and one or more heteroatoms from the group consisting of nitrogen or oxygen, with both terminal valence bonds of said chain being attached to the nitrogen attached to the 6' carbon; R₁₁, R₁₂, R₁₃, and R₁₄ are each hydrogen or halogen, where R_a is an alkyl, carboxyalkyl, aminoalkyl, cycloalkyl, and aryl, ~~or arylalkyl~~ having from 1 to 10 carbon atoms, and Z represents a linker plus the conjugated substance, wherein said conjugated substance lacks a lactam ring.

11. (Original) The conjugate as in claim 10 wherein the conjugated substance is bound to the fluorophore through an amide, ester, ether, disulfide, or thioether linkage.
12. (Original) The conjugate as in claim 10 wherein the linkage between the fluorophore and conjugated substance has a phosphate ester.
13. (Original) The fluorescent conjugate as in claim 10 wherein the conjugated substance is attached to a solid support.
14. (Original) The fluorescent conjugate as in claim 13 wherein the solid support is controlled pore glass.
15. (Original) The fluorescent conjugate as in claim 13 wherein the solid support is a polymer support.
16. (Original) The fluorescent conjugate as in claim 10 wherein the conjugated substance is part of a cell membrane.
17. (Original) The fluorescent conjugate as in claim 10 wherein the conjugated substance is part of a viral coat.

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connecting the 7' carbon to the nitrogen attached to the 6' carbon; R₄ and R₅ taken together are alkyl, each having from 2 to 5 carbon atoms connecting the 4' carbon to the nitrogen attached to the 3' carbon; R₆ and R₇ taken together are alkyl, each having from 2 to 5 carbon atoms connecting the 5' carbon to the nitrogen attached to the 6' carbon; R₃ and R₄ taken together form an alkyl or alkylene chain containing up to 5 atoms in the principal chain, consisting of carbon and one or more heteroatoms from the group consisting of nitrogen or oxygen, with both terminal valence bonds of said chain being attached to the nitrogen attached to the 3' carbon; R₇ and R₈ taken together form an alkyl or alkylene chain containing up to 5 atoms in the principal chain, consisting of carbon and one or more heteroatoms from the group consisting of nitrogen or oxygen, with both terminal valence bonds of said chain being attached to the nitrogen attached to the 6' carbon; R₁₁, R₁₂, R₁₃, and R₁₄ are each hydrogen or halogen, where R_a and R_{a'} are selected from the group consisting of alkyl, carboxyalkyl, aminoalkyl, cycloalkyl, and aryl ~~and arylalkyl~~, wherein R_a confers resistance to lactam ring formation, and further wherein R_{a'} contains a functional group; and, conjugating the fluorophore with a protein through the R_{a'} functional group of the fluorophore, the resultant conjugate being fluorescent upon excitation with light of a ~~determinable~~ wavelength of 500 to 700 nm.

22. (Previously Presented) The method as in claim 21 wherein said protein is attached to a solid support.
23. (Previously Presented) The method as in claim 21 wherein said protein is attached at an amine or sulfhydryl in said conjugate.